STRATUS
ENVIRONMENTAL, INC.

3330 Cameron Park Drive, Ste 550
Cameron Park, California 95682
(530) 676-6004 ~ Fax: (530) 676-6005

April 15, 2005
Project No. 2028-0031-01

Mr. Michael Smith
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

Re: Quarterly Groundwater Monitoring Report and Request for Environmental Case Closure, First Quarter 2005, for Nella Oil Company Station No. 31, located at 1008 Plaza Drive, Grass Valley, California

Dear Mr. Smith:

Stratus Environmental, Inc. (Stratus) is submitting the attached report, on behalf of Nella Oil Company, which presents the results of the first quarter 2005 quarterly monitoring and sampling program for the Nella Oil Company Station No. 31 (the site), located at 1008 Plaza Drive, Grass Valley, California (see Figure 1). This report is in compliance with California Regional Water Quality Control Board requirements for underground storage tank (UST) investigations.

If you have any questions regarding this report, please contact Jay Johnson at (530) 676-6000 or Scott Bittinger at (530) 676-2062.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

REGISTERED GEOLOGIST
Scott G. Bittinger
No. 7477
STATE OF CALIFORNIA

Scott G. Bittinger, P.G.
Project Geologist

Jay R. Johnson, P.G.
Project Manager

Attachment: Quarterly Groundwater Monitoring Report, First Quarter 2005

cc: Ms. Barbara Wozniak, Nella Oil Company
Mr. Markus Niebanck, Nella Oil Company
Ms. Julia R. Amaral, Property Owner
Mr. David Huff, Nevada County Environmental Health Department

Date April 15, 2005

NELLA OIL QUARTERLY GROUNDWATER MONITORING REPORT

Facility Address:	1008 Plaza Drive, Grass Valley, California
Project Supervisor:	Barbara Wozniak and Markus Niebanck
Consulting Co./Contact Person:	Stratus Environmental, Inc./ Jay Johnson, P.G.
Consultant Project No:	2028-0031-01
Primary Agency/Regulatory ID No:	Michael Smith / California Regional Water Quality Control Board / 290194

WORK PERFORMED THIS QUARTER (First 2005):

1. Stratus measured groundwater elevations from wells MW-1 through MW-5, and collected groundwater samples from wells MW-1 through MW-3, on March 14, 2005.
2. Stratus compiled and evaluated groundwater monitoring data.

WORK PROPOSED FOR NEXT QUARTER (Second 2005):

1. Stratus will continue to pursue closure of the environmental oversight case. In the event that site closure is not granted, groundwater samples will be collected and analyzed from wells MW-1 through MW-3; depth to groundwater measurements will be collected from wells MW-1 through MW-5.

Current Phase of Project:	Monitoring, Recommended Environmental Case Closure
Frequency of Groundwater Sampling:	Wells MW-1, MW-2, and MW-3= Quarterly, MW-4 and MW-5 = Annually
Frequency of Groundwater Monitoring:	Quarterly, Wells MW-1 through MW-5
Groundwater Sampling Date:	March 14, 2005
Is Free Product (FP) Present on Site:	No
FP Recovered This Quarter:	NA
Cumulative FP Recovered to Date:	NA
Approximate Depth to Groundwater:	5.55 to 7.11 feet below top of well casing
Groundwater Flow Direction:	West
Groundwater Gradient:	0.024 ft/ft

DISCUSSION:

At the time of the first quarter 2005 monitoring event, groundwater elevations had increased between 0.08 and 1.05 feet in all wells except MW-1, which decreased 0.21 feet since the previous event (December 3, 2004). Depth-to-water measurements were corrected to mean sea level (MSL) and used to construct a groundwater elevation contour map (Figure 2). The groundwater flow direction was generally to the west at an average gradient of 0.024 ft/ft. West, west-southwest, and southwest groundwater flow directions have been observed since monitoring was initiated in the fourth quarter 2002.

MTBE was reported in wells MW-1 (27 µg/L), MW-2 (9.6 µg/L), and MW-3 (12 µg/L). GRO, BTEX, and additional fuel additive concentrations were reported below laboratory detection limits in each of the samples, consistent with previous monitoring events. GRO, benzene, and MTBE analytical results are presented in Figure 3.

Stratus recommended in the Fourth Quarter 2004 *Quarterly Groundwater Monitoring Report* that the site be considered for environmental case closure. MTBE currently impacts 3 onsite groundwater monitoring wells at very low concentrations. At the time of the first quarter 2005 sampling event, only the MTBE concentration in well MW-1 (27 µg/L) exceeded the primary maximum contaminant level (MCL, 13 µg/L) established by the State of California for MTBE.

MTBE concentrations in wells MW-1 through MW-3 appear to be decreasing with time. The following table illustrates annual average MTBE concentrations for the 3 groundwater monitoring wells impacted with MTBE. Figures 4 through 6 graphically show annual average MTBE concentrations trending towards MCL levels within the next year.

Well ID	2003 Annual Average MTBE Concentration	2004 Annual Average MTBE Concentration
MW-1	76.6 µg/L	45.8 µg/L
MW-2	37.7 µg/L	18 µg/L
MW-3	19 µg/L	13.4 µg/L

These data strongly suggest that dissolved MTBE concentrations beneath the site are attenuating towards water quality objectives. Given this MTBE attenuation trend, and the current low MTBE concentrations in groundwater, Stratus recommends that the environmental case at the site be closed.

ATTACHMENTS:

- Table 1 Groundwater Elevation and Analytical Summary
- Table 2 Groundwater Analytical Results for Oxygenates and Additional Compounds
- Figure 1 Site Location Map
- Figure 2 Groundwater Elevation Contour Map (First Quarter 2005)
- Figure 3 Groundwater Analytical Summary (First Quarter 2005)
- Figure 4 Annual Average MTBE Concentrations in Groundwater, Well MW-1
- Figure 5 Annual Average MTBE Concentrations in Groundwater, Well MW-2
- Figure 6 Annual Average MTBE Concentrations in Groundwater, Well MW-3
- Appendix A Field Data Sheets
- Appendix B Sampling and Analysis Procedures
- Appendix C Certified Analytical Reports and Chain-of-Custody Documentation

TABLE 1

GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY

Nella Oil Company Station No. 31
1008 Plaza Drive, Grass Valley, CA

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-1	11/08/02	7.30	2622.22	2614.92	<50	<0.50	<0.50	<0.50	<0.50	200
	05/13/03	6.74		2615.48	<50	<0.50	<0.50	<0.50	<1.0	25
	09/03/03	7.54		2614.68	<50[1]	<0.50	<0.50	<0.50	<1.0	150
	12/29/03	7.34		2614.88	<50[1]	<0.50	<0.50	<0.50	<1.0	55
	03/22/04	5.28		2616.94	<50[1]	<0.50	<0.50	<0.50	<1.0	13
	06/02/04	6.57		2615.65	<50[1]	<0.50	<0.50	<0.50	<1.0	26
	08/31/04	7.69		2614.53	<50	<0.50	<0.50	<0.50	<1.0	72
	12/03/04	6.90		2615.32	160	<0.50	<0.50	<0.50	<1.0	72
	03/14/05	7.11		2615.11	<50	<0.50	<0.50	<0.50	<0.50	27
MW-2	11/08/02	6.62	2621.40	2614.78	<50	<0.50	<0.50	<0.50	<0.50	91
	05/13/03	6.12		2615.28	<50	<0.50	<0.50	<0.50	<1.0	40
	09/03/03	6.33		2615.07	<50[1]	<0.50	<0.50	<0.50	<1.0	54
	12/29/03	6.69		2614.71	<50[1]	<0.50	<0.50	<0.50	<1.0	19
	03/22/04	4.58		2616.82	<50[1]	<0.50	<0.50	<0.50	<1.0	18
	06/02/04	6.19		2615.21	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	08/31/04	6.68		2614.72	<50	<0.50	<0.50	<0.50	<1.0	29
	12/03/04	6.34		2615.06	56	<0.50	<0.50	<0.50	<1.0	24
	03/14/05	5.87		2615.53	<50	<0.50	<0.50	<0.50	<0.50	9.6

TABLE 1

GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY

Nella Oil Company Station No. 31

1008 Plaza Drive, Grass Valley, CA

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-3	11/08/02	6.58	2622.25	2615.67	<50	<0.50	<0.50	<0.50	<0.50	23
	05/13/03	6.43		2615.82	<50	<0.50	<0.50	<0.50	<1.0	14
	09/03/03	6.71		2615.54	<50[1]	<0.50	<0.50	<0.50	<1.0	19
	12/29/03	6.66		2615.59	<50[1]	<0.50	<0.50	<0.50	<1.0	24
	03/22/04	4.71		2617.54	<50[1]	<0.50	<0.50	<0.50	<1.0	16
	06/02/04	6.60		2615.65	<50[1]	<0.50	<0.50	<0.50	<1.0	15
	08/31/04	6.70		2615.55	<50	<0.50	<0.50	<0.50	<1.0	9.5
	12/03/04	6.53		2615.72	70	<0.50	<0.50	<0.50	<1.0	13
	03/14/05	6.45		2615.80	<50	<0.50	<0.50	<0.50	<0.50	12
MW-4	11/08/02	7.45	2623.40	2615.95	<50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/13/03	5.08		2618.32	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	09/03/03	6.68		2616.72	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	12/29/03	7.51		2615.89	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	03/22/04	5.41		2617.99	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	06/02/04	6.09		2617.31	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	08/31/04	7.27		2616.13	<50	<0.50	<0.50	<0.50	<1.0	<1.0
	12/03/04	6.78		2616.62	<50	<0.50	<0.50	<0.50	<1.0	<1.0
	03/14/05	5.80		2617.60	Not Sampled					

TABLE 1

GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY

Nella Oil Company Station No. 31

1008 Plaza Drive, Grass Valley, CA

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-5	11/08/02	6.98	2623.95	2616.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/13/03	6.16		2617.79	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	09/03/03	6.61		2617.34	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	12/29/03	7.06		2616.89	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	03/22/04	5.01		2618.94	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	06/02/04	5.92		2618.03	<50[1]	<0.50	<0.50	<0.50	<1.0	<1.0
	08/31/04	7.17		2616.78	<50	<0.50	<0.50	<0.50	<1.0	<1.0
	12/03/04	6.60		2617.35	<50	<0.50	<0.50	<0.50	<1.0	<1.0
	03/14/05	5.55		2618.40	Not Sampled					

Note:

GRO = Gasoline Range Organics (C6-C12)

GRO analyzed using EPA Method 8015B/8015M and the remaining analytes using EPA Method 8260B

MTBE = Methyl tertiary butyl ether

[1] GRO analyzed using EPA Method 8260B

msl = Mean sea level

µg/L = micrograms per liter

NM = Not measured

NS = Not sampled

NA = Not analyzed

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR OXYGENATES AND ADDITIONAL COMPOUNDS

Nella Oil Company Station No. 31
1008 Plaza Drive, Grass Valley, CA

Well Number	Date Collected	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	EDB (µg/L)	1,2-DCA (µg/L)
MW-1	11/08/02	<5.0	200	<0.50	<0.50	<0.50	NA	<2.0
	05/13/03	<5.0	25	<1.0	<1.0	<1.0	<5.0	<0.50
	09/03/03	<5.0	150	<1.0	<1.0	<1.0	NA	<1.0
	12/29/03	<10	55	<2.0	<2.0	<2.0	NA	<0.50
	03/22/04	<10	13	<2.0	<2.0	<2.0	NA	<0.50
	06/02/04	<10	26	<2.0	<2.0	<2.0	NA	<0.50
	08/31/04	<10	72	<2.0	<2.0	<2.0	NA	<0.50
	12/03/04	<10	72	<2.0	<2.0	<2.0	NA	<0.50
	03/14/05	<5.0	27	<0.50	<0.50	<0.50	NA	<0.50
MW-2	11/08/02	<5.0	91	<0.50	<0.50	<0.50	NA	<2.0
	05/13/03	<5.0	40	<1.0	<1.0	<1.0	<5.0	<0.50
	09/03/03	<5.0	54	<1.0	<1.0	<1.0	NA	<1.0
	12/29/03	<10	19	<2.0	<2.0	<2.0	NA	<0.50
	03/22/04	<10	18	<2.0	<2.0	<2.0	NA	<0.50
	06/02/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	08/31/04	<10	29	<2.0	<2.0	<2.0	NA	<0.50
	12/03/04	<10	24	<2.0	<2.0	<2.0	NA	<0.50
	03/14/05	<5.0	9.6	<0.50	<0.50	<0.50	NA	<0.50

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR OXYGENATES AND ADDITIONAL COMPOUNDS

Nella Oil Company Station No. 31
1008 Plaza Drive, Grass Valley, CA

Well Number	Date Collected	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	EDB (µg/L)	1,2-DCA (µg/L)
MW-3	11/08/02	<5.0	23	<0.50	<0.50	<0.50	NA	<2.0
	05/13/03	<5.0	14	<1.0	<1.0	<1.0	<5.0	<0.50
	09/03/03	<5.0	19	<1.0	<1.0	<1.0	NA	<1.0
	12/29/03	<10	24	<2.0	<2.0	<2.0	NA	<0.50
	03/22/04	<10	16	<2.0	<2.0	<2.0	NA	<0.50
	06/02/04	<10	15	<2.0	<2.0	<2.0	NA	<0.50
	08/31/04	<10	9.5	<2.0	<2.0	<2.0	NA	<0.50
	12/03/04	<10	13	<2.0	<2.0	<2.0	NA	<0.50
	03/14/05	<5.0	12	<0.50	<0.50	<0.50	NA	<0.50
MW-4	11/08/02	<5.0	<0.50	<0.50	<0.50	<0.50	NA	<2.0
	05/13/03	<5.0	<0.50	<1.0	<1.0	<1.0	<5.0	<0.50
	09/03/03	<5.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0
	12/29/03	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	03/22/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	06/02/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	08/31/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	12/03/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	03/14/05				Not Sampled			

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR OXYGENATES AND ADDITIONAL COMPOUNDS

Nella Oil Company Station No. 31
1008 Plaza Drive, Grass Valley, CA

Well Number	Date Collected	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	EDB (µg/L)	1,2-DCA (µg/L)
MW-5	11/08/02	<5.0	<0.50	<0.50	<0.50	<0.50	NA	<2.0
	05/13/03	<5.0	<0.50	<1.0	<1.0	<1.0	<5.0	<0.50
	09/03/03	<5.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0
	12/29/03	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	03/22/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	06/02/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	08/31/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	12/03/04	<10	<1.0	<2.0	<2.0	<2.0	NA	<0.50
	03/14/05				Not Sampled			

Note:

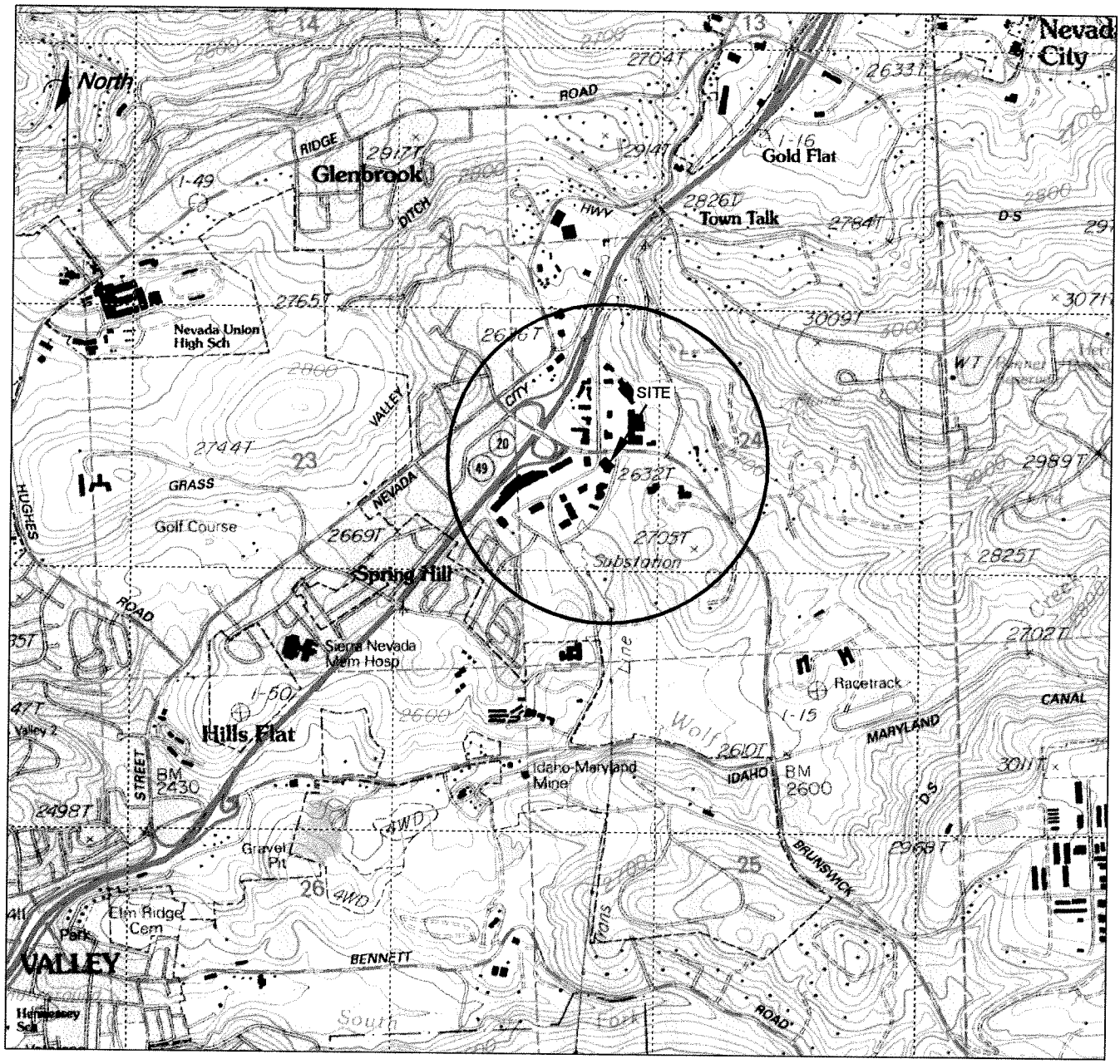
µg/L = micrograms per liter

Oxygenates and Additional Compounds analyzed using EPA Method 8260B

NS = Not sampled

NA = Not analyzed

TBA = Tertiary butyl alcohol
MTBE = Methyl tertiary butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tertiary butyl ether
TAME = Tertiary amyl methyl ether
EDB = 1,2-Dibromoethane
1,2-DCA = 1,2-Dichloroethane



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
NEVADA CITY, CA
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

QUADRANGLE LOCATION

0 2000 FT

SCALE 1:24,000

STRATUS
ENVIRONMENTAL, INC.

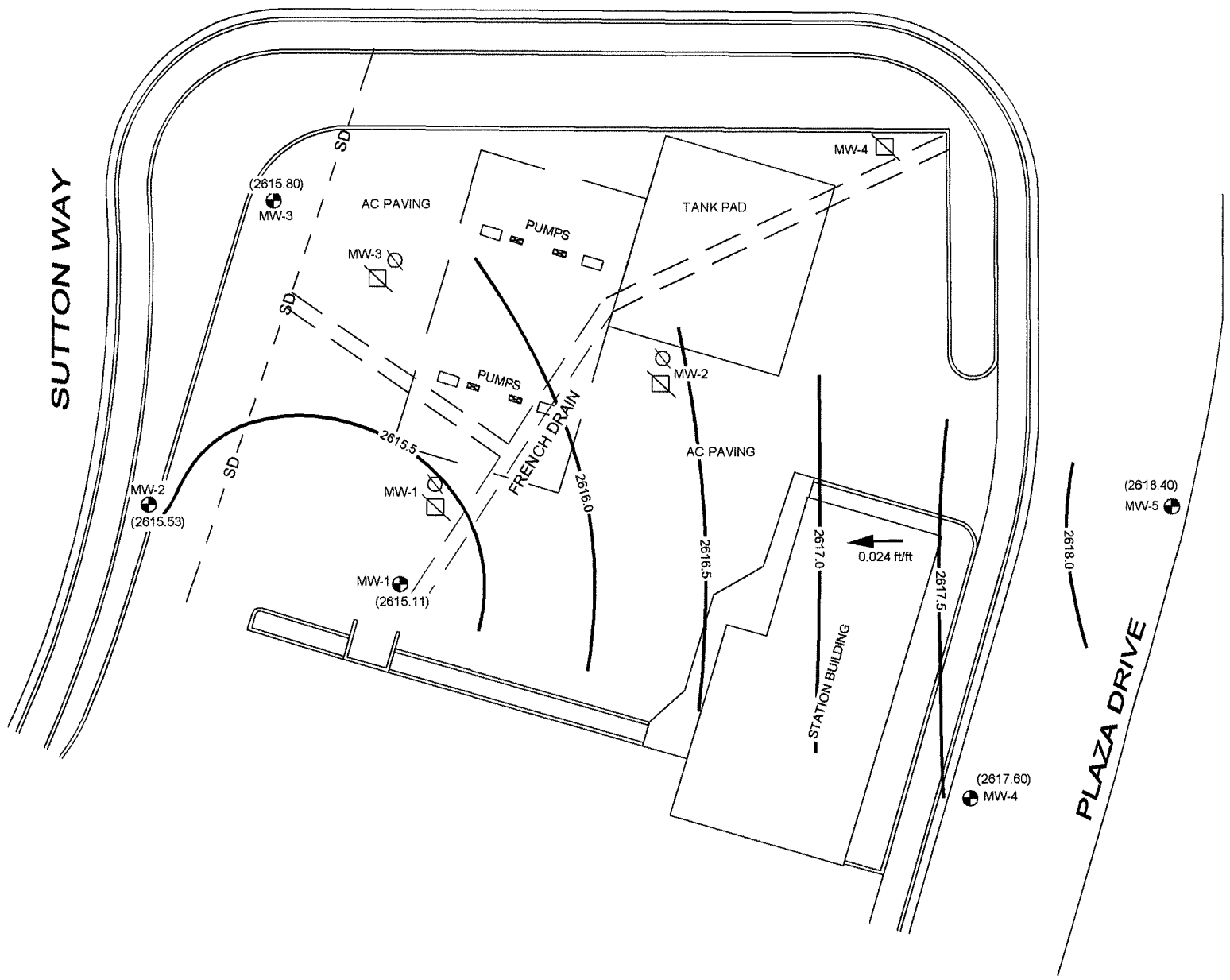
NELLA OIL STATION NO. 31
1008 PLAZA DRIVE
GRASS VALLEY, CALIFORNIA
SITE LOCATION MAP

FIGURE
1
PROJECT NO.
2028-31-1

N

BRUNSWICK ROAD

SUTTON WAY



LEGEND:

MW-4	GROUNDWATER MONITORING WELL INSTALLED BY STRATUS ENVIRONMENTAL, INC.
MW-2	ABANDONED GROUNDWATER MONITORING WELL INSTALLED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.
MW-4	ABANDONED GROUNDWATER MONITORING WELL INSTALLED BY FUGRO
– –SD— —	STORM DRAIN/ WESTERN BRANCH OF OLYMPIA CREEK
(2615.11)	GROUND WATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL.
2616.0	WATER TABLE CONTOUR IN FEET ABOVE MEAN SEA LEVEL, DASHED WHERE INFERRED
	INFERRED DIRECTION OF GROUND FLOW

WELLS MEASURED ON 3/14/05

STRATUS ENVIRONMENTAL, INC.

0 30 FT

HORZ. SCALE

NELLA OIL STATION NO. 31
1008 PLAZA DRIVE
GRASS VALLEY, CALIFORNIA

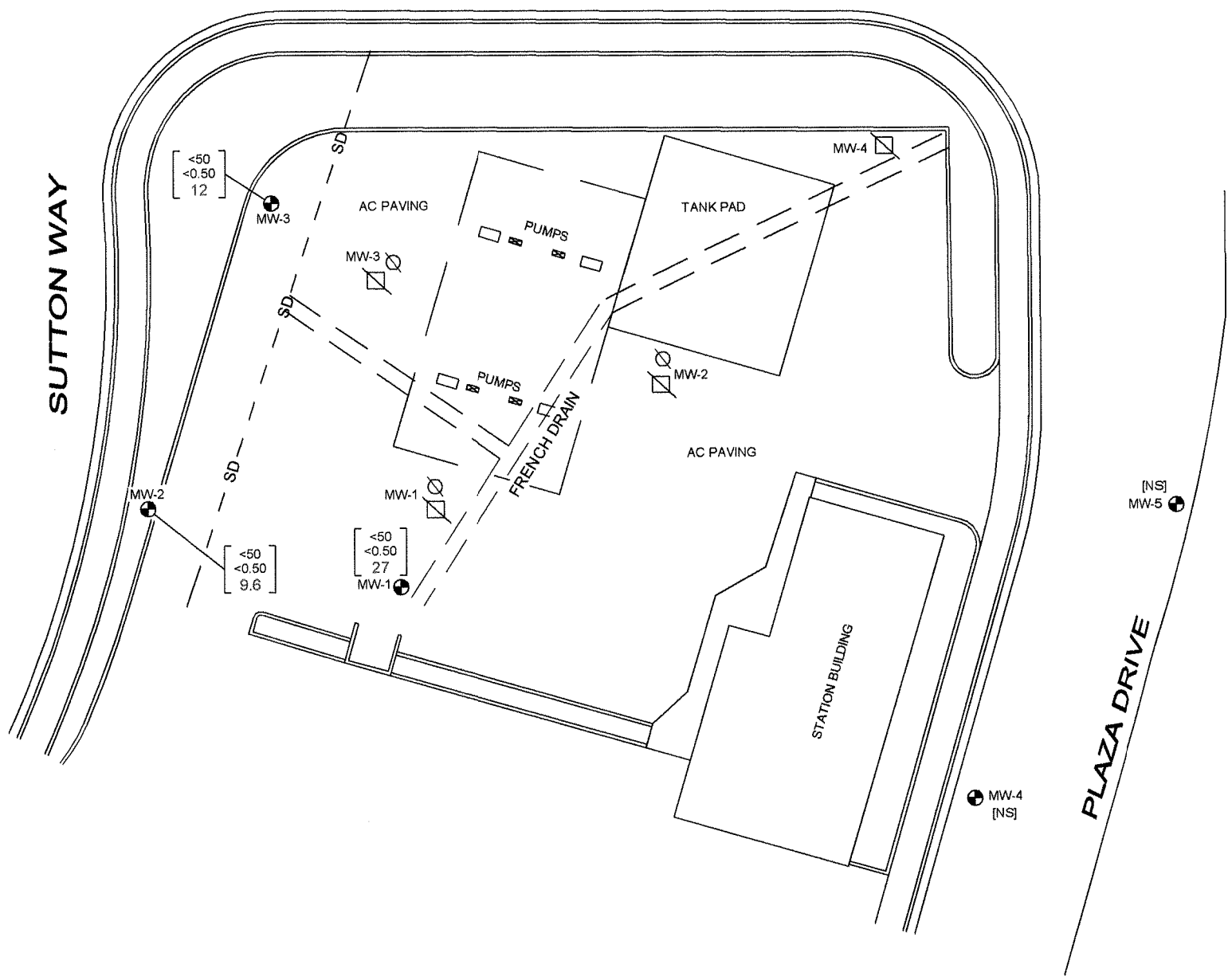
GROUNDWATER ELEVATION CONTOUR MAP
1st QUARTER 2005

FIGURE
2

PROJECT NO.
2028-31-01

Nella Oil\Quarterly JMP Mar 23, 2005 Nella Oil Quarterly Figures.dwg

N



LEGEND:

MW-4	GROUNDWATER MONITORING WELL INSTALLED BY STRATUS ENVIRONMENTAL, INC.
MW-2	ABANDONED GROUNDWATER MONITORING WELL INSTALLED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.
MW-4	ABANDONED GROUNDWATER MONITORING WELL INSTALLED BY FUGRO
– –SD– –	STORM DRAIN/ WESTERN BRANCH OF OLYMPIA CREEK
[<50 <0.50 12]	GASOLINE RANGE ORGANICS CONCENTRATION IN µg/L BENZENE CONCENTRATION IN µg/L MTBE CONCENTRATION IN µg/L
[NS]	NOT SAMPLED

SAMPLES COLLECTED ON 3/14/05
TPHG ANALYZED BY EPA METHOD 8015B
BENZENE AND MTBE ANALYZED BY EPA METHOD 8260B

STRATUS ENVIRONMENTAL, INC.

0 30 FT
HORZ. SCALE

NELLA OIL STATION NO. 31
1008 PLAZA DRIVE
GRASS VALLEY, CALIFORNIA

GROUNDWATER ANALYTICAL SUMMARY
1st QUARTER 2005

FIGURE
3

PROJECT NO.
2028-31-01

Nella Oil\Quarterly JMP Apr 15, 2005 Nella Oil Quarterly Figures.dwg

Figure 4
Annual Average MTBE Concentrations in Groundwater, Well MW-1

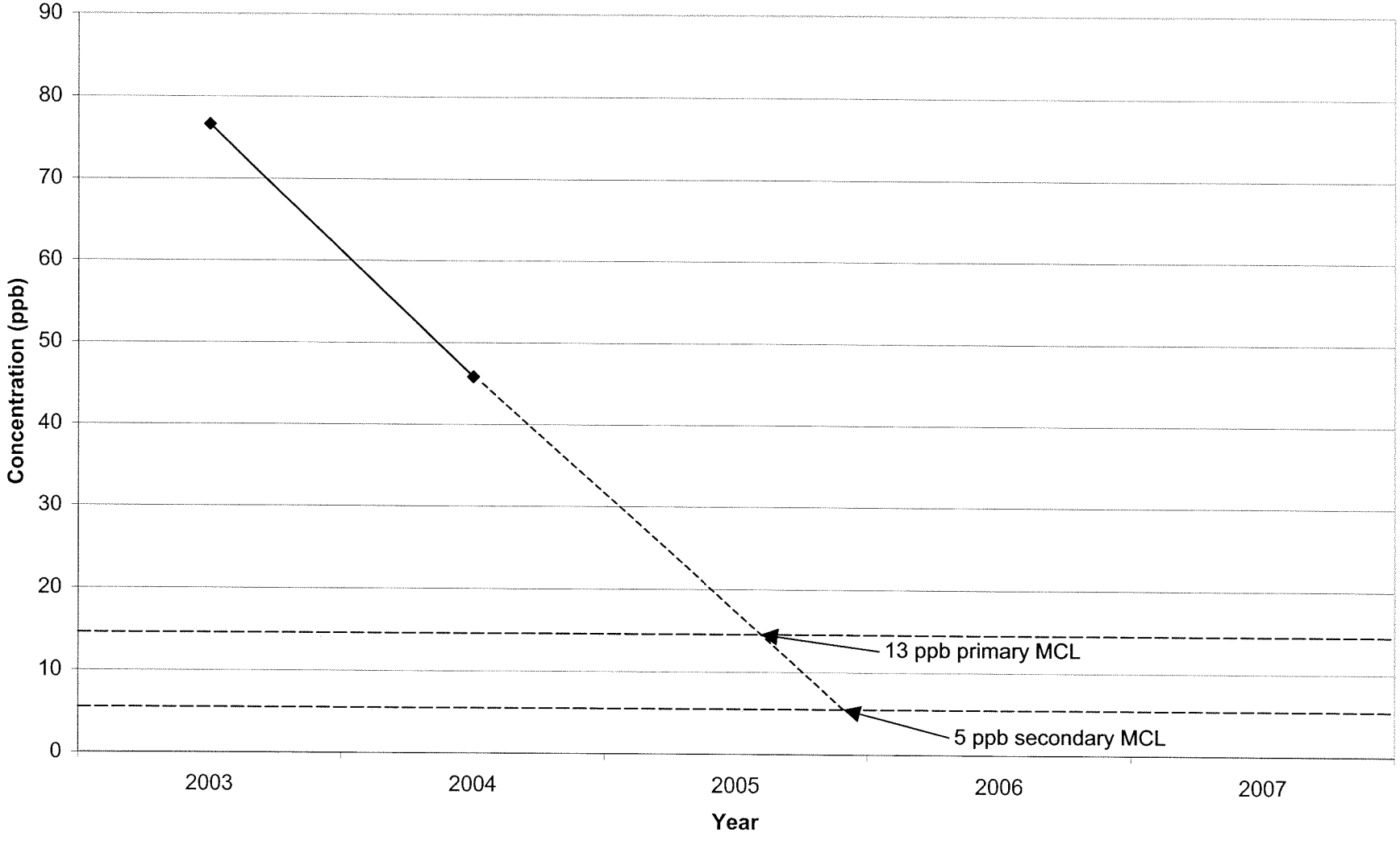


Figure 5
Annual Average MTBE Concentrations in Groundwater, Well MW-2

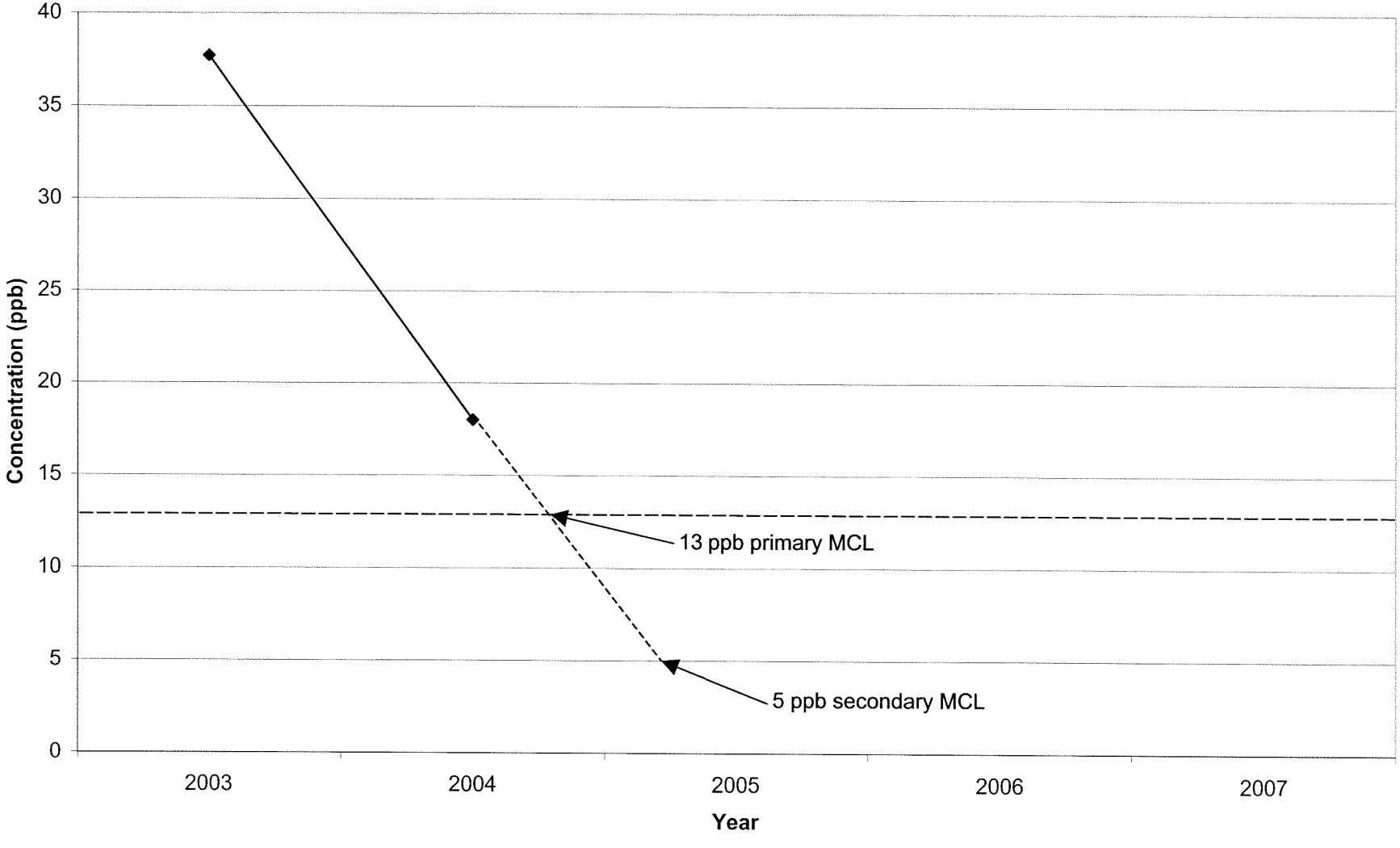
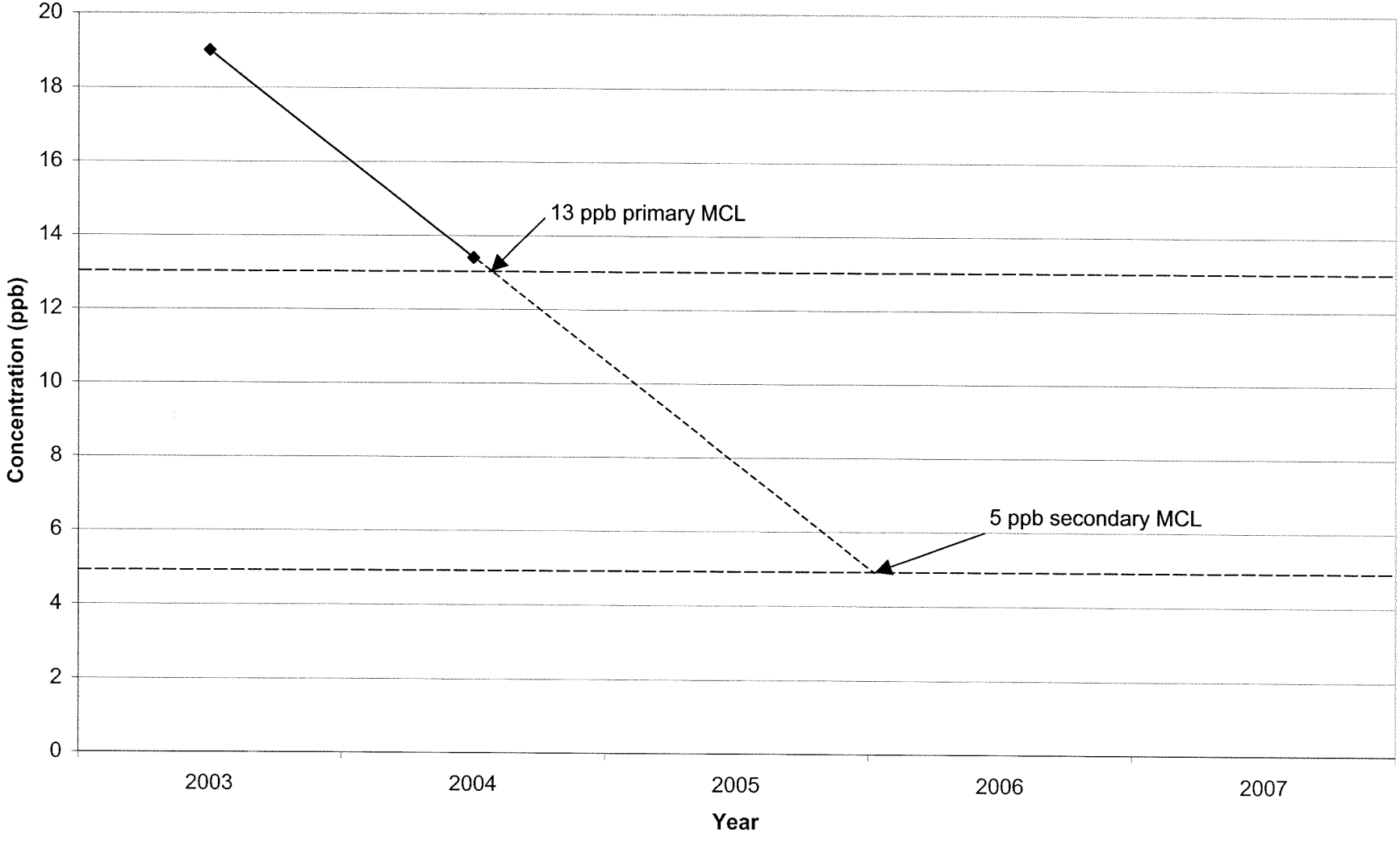


Figure 6
Annual Average MTBE Concentrations in Groundwater, Well MW-3



APPENDIX A

FIELD DATA SHEETS

STRATUS ENVIRONMENTAL INC.

Site Address: 1008 Plaza Dr ORIGINAL
City Grass Valley
Sampled By D. Foland

Site Number: #31
Project No.
Project PM Jay Johnson
Date Sampled 3-14-05

Site Contact Phone No.

Water Level Data					Purge Volume Calculations					Well Purge Method				Sample Record			Field Data
Well ID	Time	Depth to water feet	Top of Screen feet	Total Depth of Well feet	Casing Water Column (A)	Well Diameter (inches)	Multiplier Value (B)	Three Casing Volumes (gallons)	Actual Water Purged (gallons)	No Purge	Bailer	Pump	Other	DTW At Sample Time	Sample I.D.	Sample Time	Dissolved Oxygen (mg/L)
MW-1	645	7.11		20		2		7	7		X				MW-1	0805	5.01
MW-2	640	5.87				2		7	7		X				MW-2	0735	4.18
MW-3	0635	6.45			13.55	2		7	7		X				MW-3	0705	7.73
MW-4	0630	5.80				2											
MW-5	0620	5.55				2											

Two full drums wtr + 21 gals in New drum

(A) Casing water Column
Depth wtr. Depth to Bottom

Multiplier Values
2"=0.5 4"=2.0 6"=4.4

STRATUS ENVIRONMENTAL, INC.

Site Address 1008 Plaza Dr.
City Grass Valley
Site Sampled by D. Foland

Site Number #31
Project No.
Project PM Jay Johnson
Date Sampled 3-14-05

DO 5.01

Well ID mw-1				
purge start time				
	Temp C	pH	cond	gallons
time 0745	15.7	7.08	364	3
time 0805	15.7	7.07	359	7
time				
time				
purge stop time				

DO 4.18

Well ID mw-2				
purge start time				
	Temp C	pH	cond	gallons
time 0726	13.8	7.01	335	3
time 0735	13.8	6.78	311	7
time				
time				
pugre stop time				

DO 7.73

Well ID mw-3				
purge start time 0650				
	Temp C	pH	cond	gallons
time 0654	13.0	6.91	627	3
time 0705	11.9	6.96	688	7
time				
time				
purge stop time				

Well ID				
purge start time				
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time				

Well ID				
purge start time				
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time				

Well ID				
purge start time				
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time				

Well ID				
purge start time				
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time				

Well ID				
purge start time				
	Temp C	pH	cond	gallons
time				
time				
time				
time				
purge stop time				

APPENDIX B

SAMPLING AND ANALYSIS PROCEDURES

SAMPLING AND ANALYSIS PROCEDURES

The sampling and analysis procedures as well as the quality assurance plan are contained in this appendix. The procedures and adherence to the quality assurance plan will provide for consistent and reproducible sampling methods; proper application of analytical methods; accurate and precise analytical results; and finally, these procedures will provide guidelines so that the overall objectives of the monitoring program are achieved.

Ground Water and Liquid-Phase Petroleum Hydrocarbon Depth Assessment

A water/hydrocarbon interface probe is used to assess the liquid-phase petroleum hydrocarbon (LPH) thickness, if present, and a water level indicator is used to measure the ground water depth in monitoring wells that do not contain LPH. Depth to ground water or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typical a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for hydrocarbon sheen.

Subjective Analysis of Ground Water

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

Monitoring Well Purging and Sampling

Monitoring wells are purged using a pump or bailer until pH, temperature, and conductivity of the purge water has stabilized and a minimum of three well volumes of water have been removed. If three well volumes can not be removed in one half hour's time the well is allowed to recharge to 80% of original level. After recharging, a ground water sample is then removed from each of the wells using a disposable bailer.

A Teflon bailer, electric submersible or bladder pump will be the only equipment used for well sampling. When samples for volatile organic analysis are being collected, the pump flow will be regulated at approximately 100 milliliters per minute to minimize pump effluent turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon-lined septa will be used in sampling for volatile organics. These bottles will be filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum will be placed over the positive meniscus to eliminate air. After the bottle is capped, it is inverted and tapped to verify that it contains no air bubbles. The sample containers for other parameters will be filled, filtered as required, and capped.

The water sample is collected, labeled, and handled according to the Quality Assurance Plan. Water generated during the monitoring event is disposed of accruing to regulatory accepted method pertaining to the site.

QUALITY ASSURANCE PLAN

Procedures to provide data quality should be established and documented so that conditions adverse to quality, such as deficiencies, deviations, nonconforments, defective material, services, and/or equipment, can be promptly identified and corrected.

General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample is collected in a suitable container, preserved correctly for the intended analysis, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of samples used on this project can be found in this section.

Soil and Water Sample Labeling and Preservation

Label information includes a unique sample identification number, job identification number, date, and time. After labeling all soil and water samples are placed in a Ziploc® type bag and placed in an ice chest cooled to approximately 4° Celsius. Upon arriving at Stratus' office the samples are transferred to a locked refrigerator cooled to approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form. Trip blanks supplied by the laboratory accompany the groundwater sample containers and groundwater samples.

Upon recovery, the sample container is sealed to minimize the potential of volatilization and cross-contamination prior to chemical analysis. Soil sampling tubes are typically closed at each end with Teflon® sheeting and plastic caps. The sample is then placed in a Ziploc® type bag and sealed. The sample is labeled and refrigerated at approximately 4° Celsius for delivery, under strict chain-of-custody, to the analytical laboratory.

Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations, is recorded on the borehole log or in the field records. The samples are analyzed by a California-certified laboratory.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and

noting the time. The sample-control officer at the laboratory verifies sample integrity and confirms that the samples are collected in the proper containers, preserved correctly, and contain adequate volumes for analysis. These conditions are noted on a Laboratory Sample Receipt Checklist that becomes part of the laboratory report upon request.

If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory. The sample description, date received, client's name, and other relevant information is also recorded.

Equipment Cleaning

Sample bottles, caps, and septa used in sampling for volatile and semivolatile organics will be triple rinsed with high-purity deionized water. After being rinsed, sample bottles will be dried overnight at a temperature of 200°C. Sample caps and septa will be dried overnight at a temperature of 60°C. Sample bottles, caps, and septa will be protected from solvent contact between drying and actual use at the sampling site. Sampling containers will be used only once and discarded after analysis is complete.

Plastic bottles and caps used in sampling for metals will be soaked overnight in a 1-percent nitric acid solution. Next, the bottles and caps will be triple rinsed with deionized water. Finally, the bottles and caps will be air dried before being used at the site. Plastic bottles and caps will be constructed of linear polyethylene or polypropylene. Sampling containers will be used only once and discarded after analysis is complete. Glass and plastic bottles used by Stratus to collect groundwater samples are supplied by the laboratory.

Before the sampling event is started, equipment that will be placed in the well or will come in contact with groundwater will be disassembled and cleaned thoroughly with detergent water, and then steam cleaned with deionized water. Any parts that may absorb contaminants, such as plastic pump valves, etc. will be cleaned as described above or replaced.

During field sampling, equipment surfaces that are placed in the well or contact groundwater will be steam cleaned with deionized water before the next well is purged or sampled. Equipment blanks will be collected and analyzed from non-disposable sampling equipment that is used for collecting groundwater samples at the rate of one blank per twenty samples collected.

Internal Quality Assurance Checks

Internal quality assurance procedures are designed to provide reliability of monitoring and measurement of data. Both field and laboratory quality assurance checks are necessary to evaluate the reliability of sampling and analysis results. Internal quality assurance procedures generally include:

- Laboratory Quality Assurance

- Documentation of instrument performance checks
- Documentation of instrument calibration
- Documentation of the traceability of instrument standards, samples, and data
- Documentation of analytical and QC methodology (QC methodology includes use of spiked samples, duplicate samples, split samples, use of reference blanks, and check standards to check method accuracy and precision)

- Field Quality Assurance

- Documentation of sample preservation and transportation
- Documentation of field instrument calibration and irregularities in performance

Internal laboratory quality assurance checks will be the responsibility of the contract laboratories. Data and reports submitted by field personnel and the contract laboratory will be reviewed and maintained in the project files.

Types of Quality Control Checks

Samples are analyzed using analytical methods outlined in EPA Manual SW 846 and approved by the California Regional Water Quality Control Board-Central Valley Region in the Leaking Underground Fuel Tanks (LUFT) manual and appendices. Standard contract laboratory quality control may include analysis or use of the following:

- Method blanks – reagent water used to prepare calibration standards, spike solutions, etc. is analyzed in the same manner as the sample to demonstrate that analytical interferences are under control.
- Matrix spiked samples – a known amount of spike solution containing selected constituents is added to the sample at concentrations at which the accuracy of the analytical method is to satisfactorily monitor and evaluate laboratory data quality.
- Split samples – a sample is split into two separate aliquots before analysis to assess the reproducibility of the analysis.
- Surrogate samples – samples are spiked with surrogate constituents at known concentrations to monitor both the performance of the analytical system and the effectiveness of the method in dealing with the sample matrix.
- Control charts – graphical presentation of spike or split sample results used to track the accuracy or precision of the analysis.
- Quality control check samples – when spiked sample analysis indicates atypical instrument performance, a quality check sample, which is prepared independently of the calibration standards and contains the constituents of interest, is analyzed to confirm that measurements were performed accurately.

- Calibration standards and devices – traceable standards or devices to set instrument response so that sample analysis results represent the absolute concentration of the constituent.

Field QA samples will be collected to assess sample handling procedures and conditions. Standard field quality control may include the use of the following, and will be collected and analyzed as outlined in EPA Manual SW 846.

- Field blanks – reagent water samples are prepared at the sampling location by the same procedure used to collect field groundwater samples and analyzed with the groundwater samples to assess the impact of sampling techniques on data quality. Typically, one field blank per twenty groundwater samples collected will be analyzed per sampling event.
- Field replicates – duplicate or triplicate samples are collected and analyzed to assess the reproducibility of the analytical data. One replicate groundwater sample per twenty samples collected will be analyzed per sampling event, unless otherwise specified. Triplicate samples will be collected only when specific conditions warrant and generally are sent to an alternate laboratory to confirm the accuracy of the routinely used laboratory.
- Trip blanks – reagent water samples are prepared before field work, transported and stored with the samples and analyzed to assess the impact of sample transport and storage for data quality. In the event that any analyte is detected in the field blank, a trip blank will be included in the subsequent groundwater sampling event.

Data reliability will be evaluated by the certified laboratory and reported on a cover sheet attached to the laboratory data report. Analytical data resulting from the testing of field or trip blanks will be included in the laboratory's report. Results from matrix spike, surrogate, and method blank testing will be reported, along with a statement of whether the samples were analyzed within the appropriate holding time.

Stratus will evaluate the laboratory's report on data reliability and note significant QC results that may make the data biased or unacceptable. Data viability will be performed as outlined in EPA Manual SW 846. If biased or unacceptable data is noted, corrective actions (including re-sample/re-analyze, etc.) will be evaluated on a site-specific basis.

APPENDIX C

CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

KIFF ANALYTICAL LLC

Report Number : 42788
Date : 3/18/2005

Jay Johnson
Stratus Environmental, Inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682

Subject : 3 Water Samples
Project Name : Nella Oil
Project Number :

Dear Mr. Johnson,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 42788

Date : 3/18/2005

Project Name : **Nella Oil**

Project Number :

Sample : **MW-1** Matrix : Water Lab Number : 42788-01

Sample Date :3/14/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Methyl-t-butyl ether (MTBE)	**27**	0.50	ug/L	EPA 8260B	3/17/2005
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	3/17/2005
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/17/2005
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Toluene - d8 (Surr)	99.0		% Recovery	EPA 8260B	3/17/2005
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	3/17/2005
Dibromofluoromethane (Surr)	99.2		% Recovery	EPA 8260B	3/17/2005
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	3/17/2005

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 42788
Date : 3/18/2005

Project Name : **Nella Oil**
Project Number :

Sample : **MW-2** Matrix : Water Lab Number : 42788-02
Sample Date :3/14/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Methyl-t-butyl ether (MTBE)	**9.6**	0.50	ug/L	EPA 8260B	3/17/2005
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	3/17/2005
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/17/2005
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Toluene - d8 (Surr)	97.9		% Recovery	EPA 8260B	3/17/2005
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	3/17/2005
Dibromofluoromethane (Surr)	99.0		% Recovery	EPA 8260B	3/17/2005
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	3/17/2005

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 42788
Date : 3/18/2005

Project Name : **Nella Oil**
Project Number :

Sample : **MW-3** Matrix : Water Lab Number : 42788-03
Sample Date :3/14/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Methyl-t-butyl ether (MTBE)	**12**	0.50	ug/L	EPA 8260B	3/17/2005
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	3/17/2005
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/17/2005
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2005
Toluene - d8 (Surr)	98.2		% Recovery	EPA 8260B	3/17/2005
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	3/17/2005
Dibromofluoromethane (Surr)	99.1		% Recovery	EPA 8260B	3/17/2005
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	3/17/2005

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Report Number : 42788

Date : 3/18/2005

QC Report : Method Blank Data

Project Name : **Nella Oil**

Project Number :

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	3/16/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/16/2005
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	3/16/2005
Toluene - d8 (Surr)	98.4		%	EPA 8260B	3/16/2005
4-Bromofluorobenzene (Surr)	117		%	EPA 8260B	3/16/2005
Dibromofluoromethane (Surr)	99.1		%	EPA 8260B	3/16/2005
1,2-Dichloroethane-d4 (Surr)	103		%	EPA 8260B	3/16/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 42788

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 3/18/2005

Project Name : **Nella Oil**

Project Number :

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	42770-21	<0.50	40.0	40.0	42.9	41.2	ug/L	EPA 8260B	3/16/05	107	103	4.05	70-130	25
Toluene	42770-21	<0.50	40.0	40.0	41.8	40.2	ug/L	EPA 8260B	3/16/05	104	101	3.82	70-130	25
Tert-Butanol	42770-21	<5.0	200	200	199	203	ug/L	EPA 8260B	3/16/05	99.4	102	2.30	70-130	25
Methyl-t-Butyl Ether	42770-21	<0.50	40.0	40.0	41.0	40.5	ug/L	EPA 8260B	3/16/05	102	101	1.26	70-130	25

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 42788

Date : 3/18/2005

QC Report : Laboratory Control Sample (LCS)

Project Name : **Nella Oil**

Project Number :

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	3/16/05	104	70-130
Toluene	40.0	ug/L	EPA 8260B	3/16/05	103	70-130
Tert-Butanol	200	ug/L	EPA 8260B	3/16/05	101	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	3/16/05	101	70-130

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By: Joel Kiff

KIFF ANALYTICAL LLC

2795 2nd Street, Suite 300
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4808

Lab No. 42788 Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Jay Johnson

Company/Address: STRATUS ENV 3330 Cameron Park Dr. Suite 550

Phone No.: 530 676-6004 FAX No.: 530 676-6005

Project Number: P.O. No:

Project Name: Nella 0,1

Project Address: 1008 Plaza Dr Grass Valley, CA

California EDF Report? ☐ Yes ☒ No

Recommended but not mandatory to complete this section:

Sampling Company Log Code: - - -

Global ID: - - - - - - - - - - -

EDF Deliverable To (Email Address):

Sampler Signature: Jay Johnson

Sample Designation	Sampling Date	Sampling Time	Container: 40 ml VOA	Container: SLEEVE	Preservative: HCl	Preservative: HNO_3	Preservative: ICE	Preservative: NONE	Matrix: WATER	Matrix: SOIL	BTEX (8021B)	BTEX/TPH Gas/MTBE (8021B/M8015)	TPH as Diesel (M8015)	TPH as Motor Oil (M8015)	TPH Gas/BTEX/MTBE (8260B)	5 Oxygenates/TPH Gas/BTEX (8260B)	7 Oxygenates/TPH Gas/BTEX (8260B)	5 Oxygenates (8260B)	7 Oxygenates (8260B)	Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)	EPA 8260B (Full List)	Volatile Halocarbons (EPA 8260B)	Lead (7421/239.2) TOTAL (X) W.E.T. (X)	1,2 DCA	TAT: 12 hr/24 hr/48 hr/72 hr/1 wk	For Lab Use Only
MW-1	3/14/05	0825	5		X											X								X	WK	01
MW-2	"	0735	"		"											"								"		02
MW-3	"	0705	"		"											"								"		03

Relinquished by:	Date	Time	Received by:
[signature]	3/14/05	1058	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	031405	1038	Michelle Spencer, KIFF Analytical

Remarks:

Bill to:

Distribution: White - Lab, Pink - Originator

Forms/coc 121001.fh9